REMARKS

In view of the above amendment and following remarks, reconsideration of the present application is respectfully requested.

By this amendment, each of independent claims 15, 16 and 18 have been amended. No new matter has been added.

Claims 15, 16 & 18 have been rejected under 35 U.S.C. § 101 and/or 35 U.S.C. § 112, second paragraph, for the reasons contained paragraphs 2-4 on pages 2-3 of the Office action.

Moreover, claims 15, 16 & 18 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Tsumagari et al. (US Pub. 2003/0161615), hereinafter "Tsumagari", in view of Kimura et al. (USPN: 6, 523,094), hereinafter "Kimura" and Digital Television Application Manager (NPL Document, authors C. Peng and P. Vuorimaa), hereinafter "Peng".

Without intending to acquiesce to the aforementioned rejections and in order to expedite allowance of this application, each of independent claims 15, 16 and 18 have been amended so as to recite, inter alia, the following:

> the second operation mode object is stored in a file, includes cache management information, is loaded by the playback apparatus when the playback apparatus is in a second operation mode, and defines run control of an application in accordance with a selection of a current title corresponding to the second operation mode object, the run control being a control of reading a class file included in a Java archive file composing an application having a life cycle corresponding to the current title onto a heap memory of the virtual machine from a cache when the Java archive file composing the application has been preloaded to the cache, and
>
> the cache management information shows, of Java archive files that compose applications, which Java archive file is to be read to the cache, before audio-visual playback of the current title following the selection of the current title.

The above recited features of the second operation mode object defining run control of an application in accordance with a selection of a current title is supported, for example, at least by page 36 (line 28) – page 37 (line 18) and Figure 20 of the originally filed application.

In addition to the aforementioned interaction between the structural/hardware components such as a cache and heap memory recited in independent claims 15, 16 and 18, independent claims 16 and 18 have been further amended to recite a playback unit and playback step, respectively, to execute audio-visual playback in accordance with the current title. Moreover, it is noted that claim 15 recites that the first and second operation mode objects are loaded by a playback apparatus when the playback apparatus is in first and second operation modes, respectively. As such, claims 15, 16 and 18 clearly comply with the requirements of 35 U.S.C. §101 and 35 U.S.C. §112 and withdrawal of the above-mentioned §101 and §112 rejections is requested.

Next, it is submitted that the prior art references, taken either alone or in combination, fail to disclose or suggest the aforementioned features as now recited in amended independent claims 15, 16 and 18 for at least the following reasons.

According to the aforementioned recited features of independent claims 15, 16 and 18, the second operation mode object that is for use in a virtual machine (i.e., BD-J object) (i) is stored in a file, (ii) defines run control of an application in accordance with a selection of a current title corresponding to the second operation mode object, and (iii) the run control being a control of reading a class file included in a Java archive file composing an application having a life cycle corresponding to the current title onto a heap memory of the virtual machine from a cache when the Java archive file composing the application has been preloaded to the cache.

Further, the cache management information reads a Java archive file corresponding to an application that is not currently running into the cache when a selection of the current title is made, so as to increase cache hit probability in the loading of the Xlet program. According to such a configuration, an application that is not currently running and that is not automatically run by the selection of the current title but is to be called in the current title is read into to the cache in advance.

In accordance with the above technological feature in which the cache management information provided to the operation mode object, the speed at which application signaling is performed is enhanced by incorporating information that provides an instruction of storing an application to the cache to an operation mode object corresponding to the current title.

It is submitted that the aforementioned features recited in independent claims 15, 16 and 18, as well as the above-mentioned advantages resultant therefrom, are not disclosed or suggested by the prior art references taken either alone or in combination.

The Tsumagari reference was relied upon as the primary reference for teaching a majority of the features recited in each of the independent claims 15, 16 and 18. The Tsumagari reference specifically states that "ENAV contents (or ENAV content) 30 in FIG. 30 are prepared as a mechanism that allows the user to play back the contents (movie or music) of each VTS by a method different from VMG/VTSI prepared by the provider, and to play back while adding contents different from VMG/VTSI prepared by the provider." (see paragraph [0064]). Moreover, the Tsumagari reference further reads that: "Logically, ENAV contents 30 can be classified into ENAV playback information, and the data body of ENAV contents. The data body of ENAV contents contains audio data, still image data, text data, moving image data, and the like." (see paragraph [0065]). According further to paragraph [0067] of Tsumagari, the ENAV

playback information can contain file information of the ENAV contents (information of a file to be referred to, and information of a file to be referred to instead if the file to be referred to is not present), synchronization information (information used to control to play back the DVD-Video contents in connection or combination with that of the ENAV contents at a predetermined timing), and duration information (information indicating the display time range or timing range of the ENAV contents).

Also, while the Tsumagari reference discloses reading of the ENAV playback control method in advance in paragraph [0073], the ENAV playback control method mentioned in such context actually refers to the playback method for the ENAV playback information disclosed in paragraphs [0064] and [0065], and includes playback methods such as display method, playback order, playback switch sequence, and selection of data to be played back. Moreover, according to paragraphs [0064] and [0065], the display method, playback order, playback switch sequence, and selection of data to be played back included in the ENAV playback information (control method) is described by using markup languages, and script languages. By reading and storing the control method of the ENAV playback information described in script languages into a memory, processing can be performed without delay when the ENAV contents data body is received.

Based on the above, lets assume *arguendo* that paragraph [0073] discloses reading a Javascript file including description of the control information of the ENAV playback information into a memory in advance. However, even assuming *arguendo* that Tsumagari discloses such reading of the Javascript file which includes the ENAV playback information into a Java virtual machine provided to a playback device in advance, Tsumagari includes no disclosure or suggestion for reading an application which is expected to be called in the future

into the cache in advance. The reason no disclosure is found in the Tsumagari reference for improving the cache hit probability when the application presently running calls another application is due to the fact that the reading, in advance, of a Javascript file including description of the control method of the ENAV playback information as disclosed in paragraph [0073] of Tsumagari is clearly not technically equivalent to the run control of an application defined by the second operation mode object or the reading of a Java archive file into the cache by the cache management information as recited in each of independent claims 15, 16 and 18 of the present application.

Moreover, as will be described next, the Kimura and Peng references clearly fail to cure the aforementioned shortcomings of the Tsumagari reference.

The Kimura reference is directed towards a portable information processing terminal device (e.g., PDA) and its file management method with improvement for realizing a lower power consumption and a large memory capacity (see Title and column 1 [lines 9-14]). As noted on page 6 of the Office action, the Examiner has relied upon Column 17 [lines 58-68] of Kimura for teaching "..an apparatus using a cache for storing the file management information and readout the management information..". However, column 17 [lines 58-68] of the Kimura reference discloses a "File Hoarding into Cache" process to determine whether or not to read files recorded onto the disk device 16 to the cache 17 by checking the file attribute information of each of the files (see Figures 1 & 12 and column 17 [line 38]). More specifically, viewing Figure 12, the file management unit regularly checks whether it is in the disk access permitted state or the disk access prohibited state (step S121). If it is in the disk access permitted state, the file management unit 102 checks the file attribute information of each of a plurality of files stored in the disk device 16 to judge whether it should be selected as a file that should be read

into the cache 17 in advance or not, so as to select files with higher priority levels among those files that are not yet copied to the cache 17 from a group of files in the disk device 16 (step S122). Then, the file management unit 102 copies the selected files collectively from the disk device 16 to the cache 17 (step S123).

Based upon the above description, it is clear that the Kimura reference discloses determining files on the recording medium which are not yet copied to the cache by using the file attribute information of each of the files and reading, into the cache, files which have been determined as not yet being copied to the cache. Accordingly, such disclosure of the Kimura reference clearly is different from the features recited in independent claims 15, 16 and 18 which are directed towards reading a Java archive file composing an application which is not currently running into the cache when executing run control of an application in accordance with a selection of a current title. Thus, the Kimura reference clearly fails to cure the above-mentioned shortcomings of the primary Tsumagari reference.

Next, regarding the Peng reference, it is noted that this reference is directed towards application management for digital television broadcasting. (See ABSTRACT on page 104). An application manager disclosed in Peng obtains information required for downloading an Xlet program by decoding a transport stream and obtaining an AIT table (see Fig. 1 & "2. TRANSPORT STREAM AND AIT" on pages 104-105). As depicted in Figure 1 of the Peng reference, the AIT table is multiplexed with a transport stream. Moreover, the Peng reference discloses an Xlet interface wherein each of a load state, a dead state, running state and a pause state of a management-target application is defined (see "4.1 XletContent and Xlet Interfaces" on page 106). The control of such application states is defined by the application information table (AIT), which is transmitted by using a TS packet (i.e., denoted by Pjar_id=228). Thus, based on

the above description, a clear difference exists between the features recited in each of independent claims 15, 16 and 18, and the disclosure of the Peng reference. That is, Peng discloses run control of applications in units of programs in the context of digital broadcasting, whereas the features recited in independent claims 15, 16 and 18 of the present application are directed to a reading of a Java archive file composing an application which is not currently running into the cache when executing run control of an application in accordance with a selection of a current title.

In view of the foregoing, it is submitted that Tsumagari, Kimura and Peng references, taken either alone or in combination, clearly fail to disclose or suggest that the second operation mode object is stored in a file, includes cache management information, is loaded by the playback apparatus when the playback apparatus is in a second operation mode, and defines run control of an application in accordance with a selection of a current title corresponding to the second operation mode object, the run control being a control of reading a class file included in a Java archive file composing an application having a life cycle corresponding to the current title onto a heap memory of the virtual machine from a cache when the Java archive file composing the application has been preloaded to the cache, wherein the cache management information shows, of Java archive files that compose applications, which Java archive file is to be read to the cache, before audio-visual playback of the current title following the selection of the current title, as recited in each of independent claims 15, 16 and 18.

In view of the foregoing, it is submitted that the present application is clearly allowable and the Examiner is kindly requested to promptly pass this case to issuance.

In the event, however, that the Examiner has any comments or suggestion of a nature necessary to place this case in condition for allowance, then the Examiner is kindly requested to contact the Applicant's representatives to expedite allowance of this application.

Respectfully submitted,

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